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Anti-oxidant seasonal variation study of *Sideritis hyssopifolia* by untargeted metabolomics

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Untargeted metabolomics can be a useful approach to follow the metabolome variation of a plant in term of composition and biological activity. In this study we used this approach to follow the metabolomics variations occurring during the seasons in the species *Sideritis hyssopifolia*. 10 samples of the plant were collected at four different periods of the year. After an ethanolic extraction, the extracts were analysed by DDA LC-MS/MS. The pre-processing of the data was managed on MZmine2 with using .mzXML converted files. The resulting aligned peak intentisties was uploaded on the MetaboAnalyst 3.0 website for the statistical analysis. All extracts were tested for anti-oxidant activity.
From a metabolome perspective, the data showed a good separation of the 4 groups with a seasonal trend and the same pattern was observed using a biological mapping of the data. In order to annotate the features of interest, molecular networking was undertaken using both MetGem and MetWork (for the *in silico* metabolization). Eventually, isolation of the compounds was realized for the pure compound activity testing.